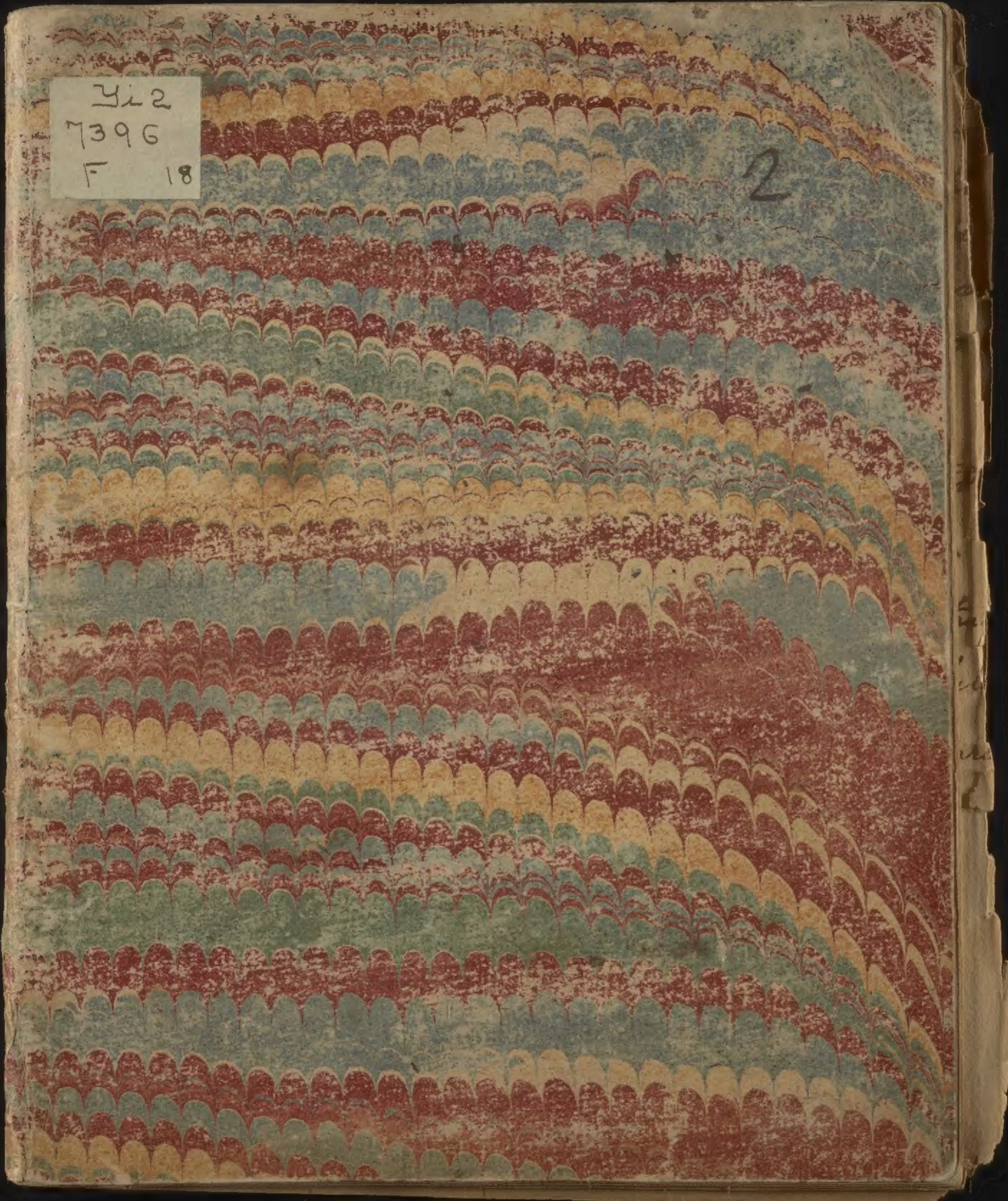
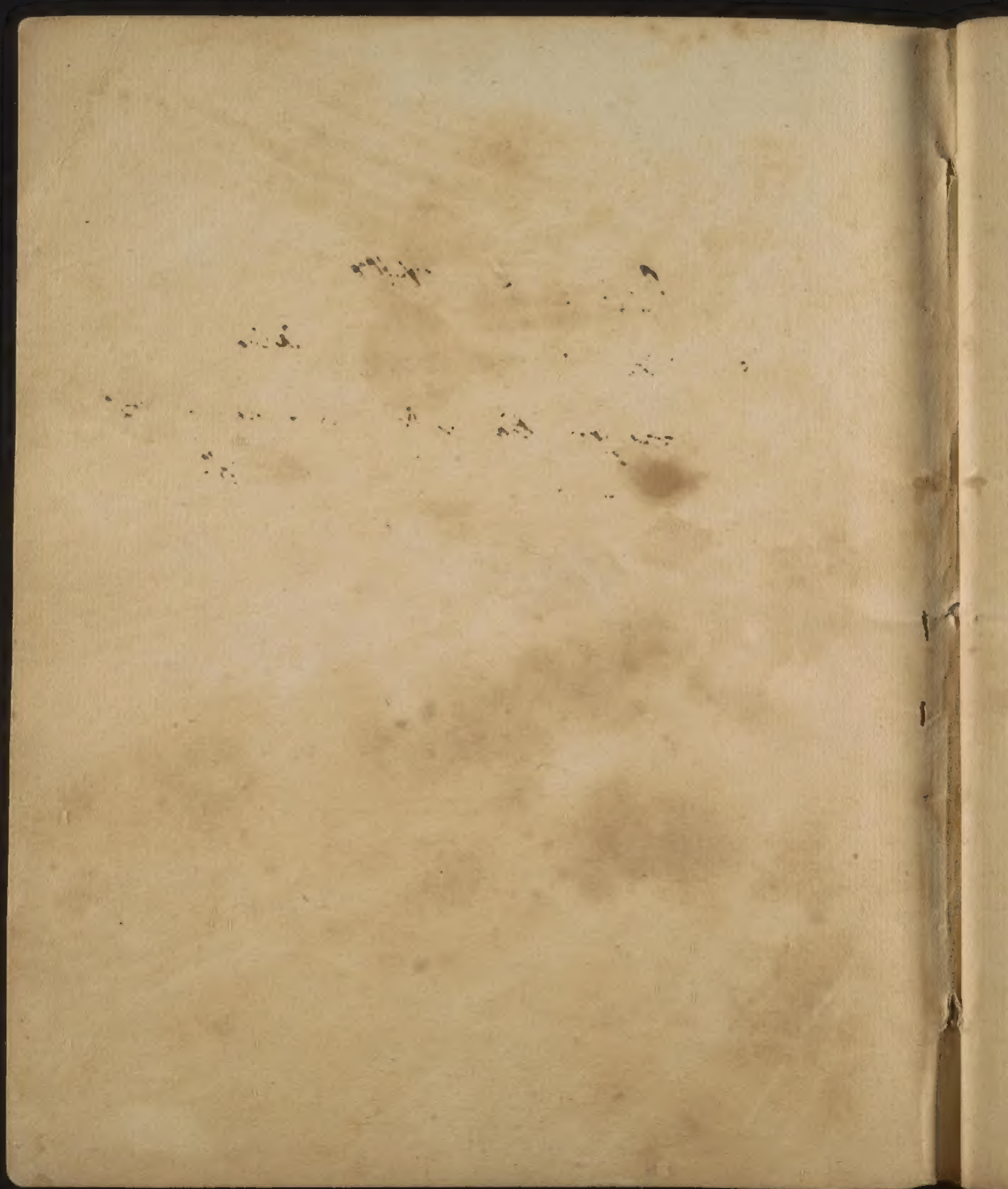


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Lectures on Pathology.
Morbid Effects of Cold. p: 47.
of Rarity & Density of the Air 80
of Impregnations & mixtures of
the Air — — 80

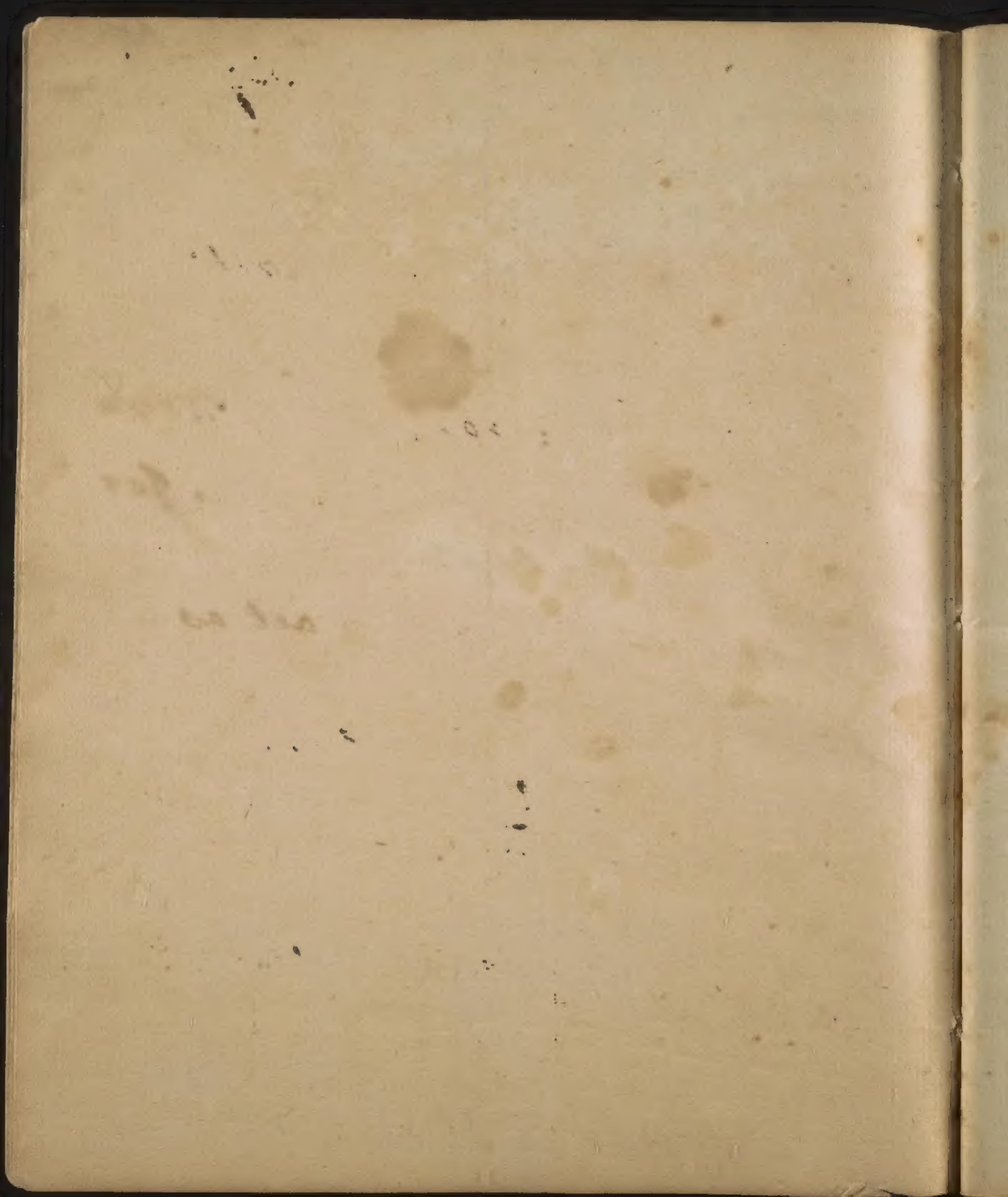
✓ I shall mention its positive, & 2^d its
relative effects. —

falls more ^{wholly} instantly
~~more~~ rain in these Islands in ~~any~~
~~year~~ than in any other ~~of~~ coun-
try in Europe - or perhaps in the
world. — tho' less than in the US —

Let us next attend to the effects
of Cold upon the human body. V

Cold is a negative quality. It exists
only from the abstraction of heat.

It has been supposed to act as a stimu-
lant upon the body, but this opinion
has arisen only from an ignorance of
that Law in the Animal Economy,
that the Abstraction of ^{the} Stimulus
of heat by
increasing the excitability of the
System renders it liable to be acted
upon with more force by other

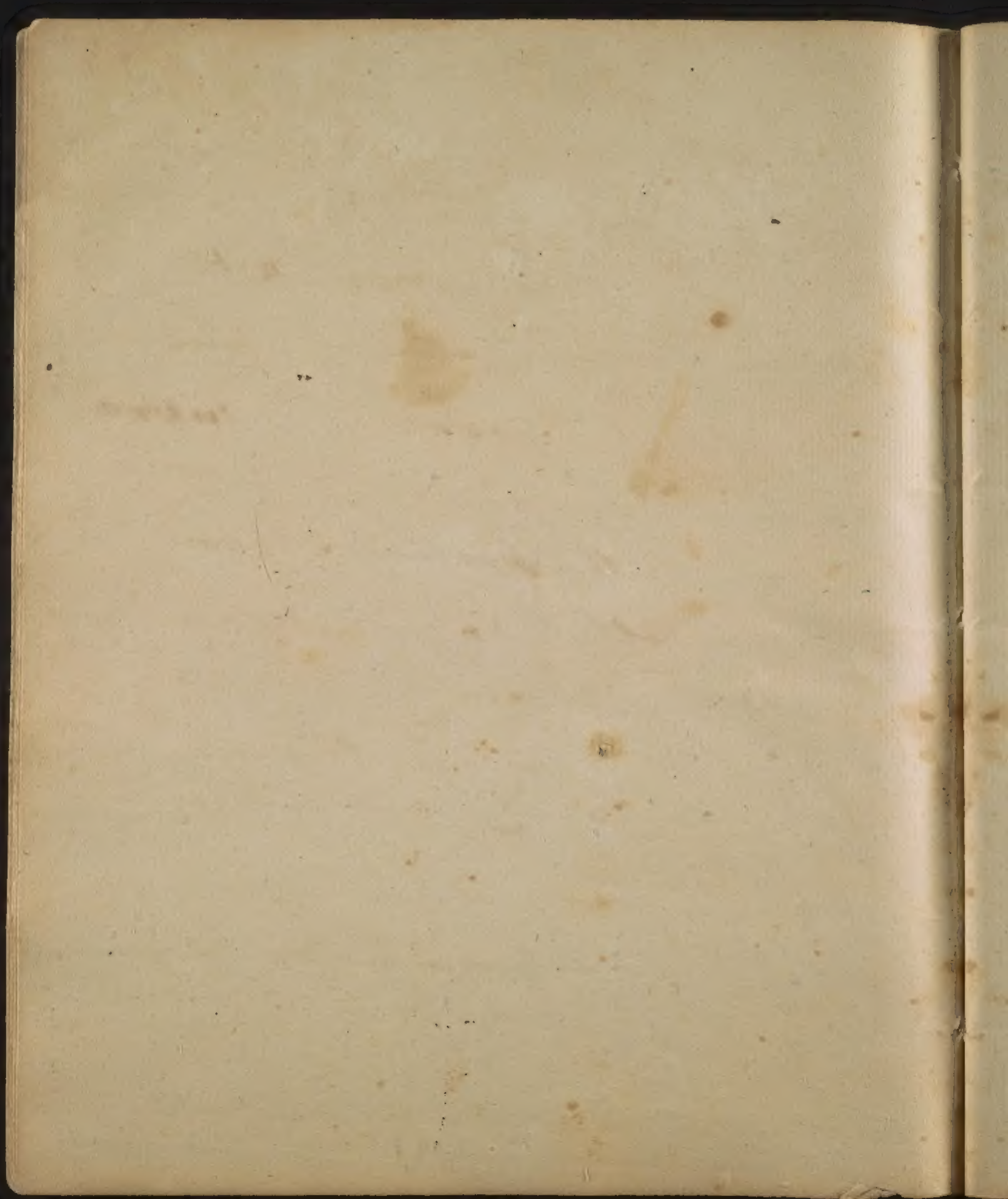


stimuli, and hence the vigor im-
 -parted to the system by these stimuli
 has been erroneously ascribed to
 the cold. The universal action of
 cold on the system is as a sedative.

This I infer ^{1st} from the general
 debility which follows the action
 of cold on the system. Labourers &
 travellers both bear witness to the truth
 of this observation in the winter season.
 2 From the weakness - slowness - ~~and~~
 absence of pulse [&] from the sleeping -
 -ness and death which follow cold.

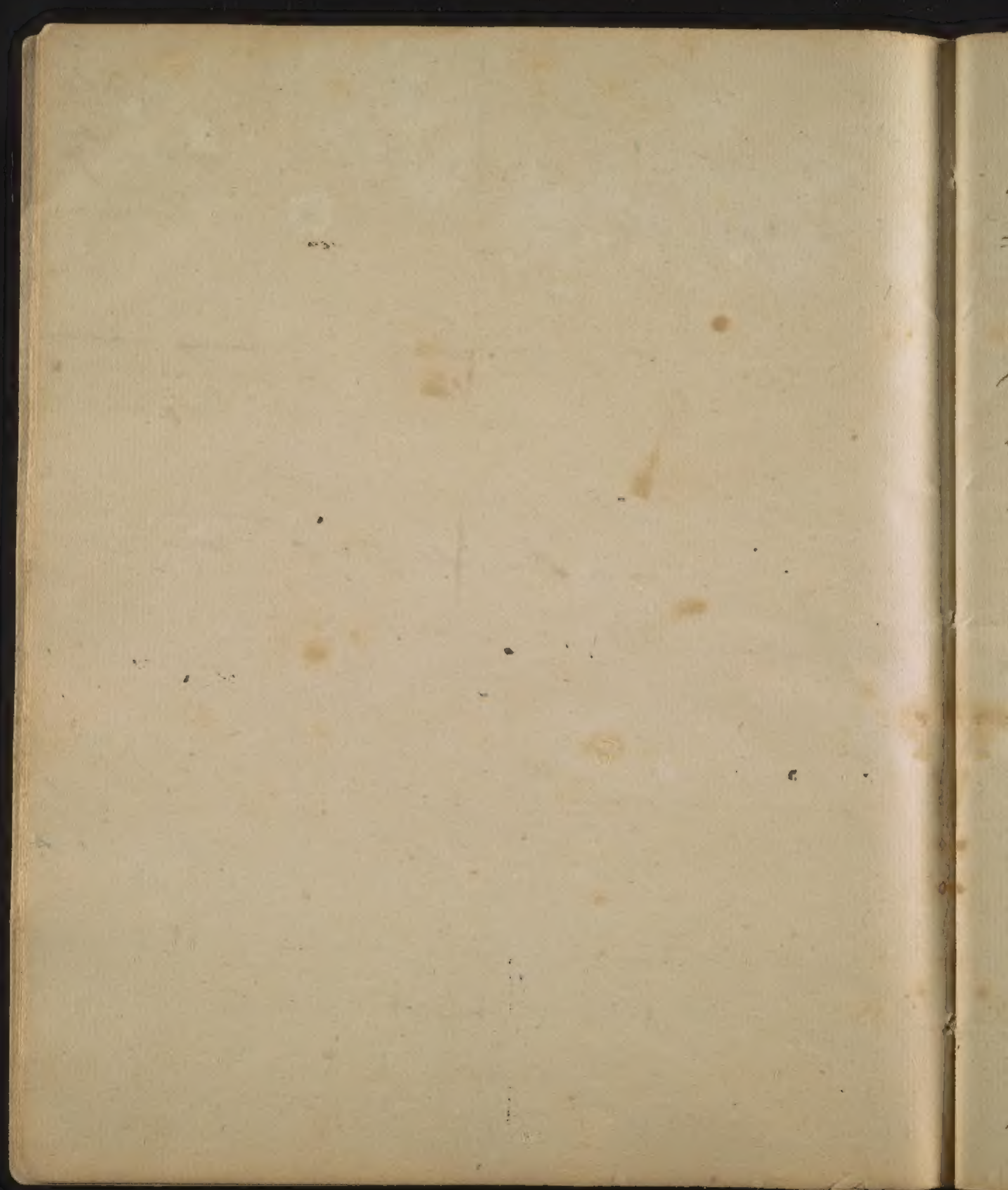
The pulse of a Greenlanders is generally
 beats but 40 strokes in a minute. All

these phenomena certainly indicate
 the sedative operation of cold upon

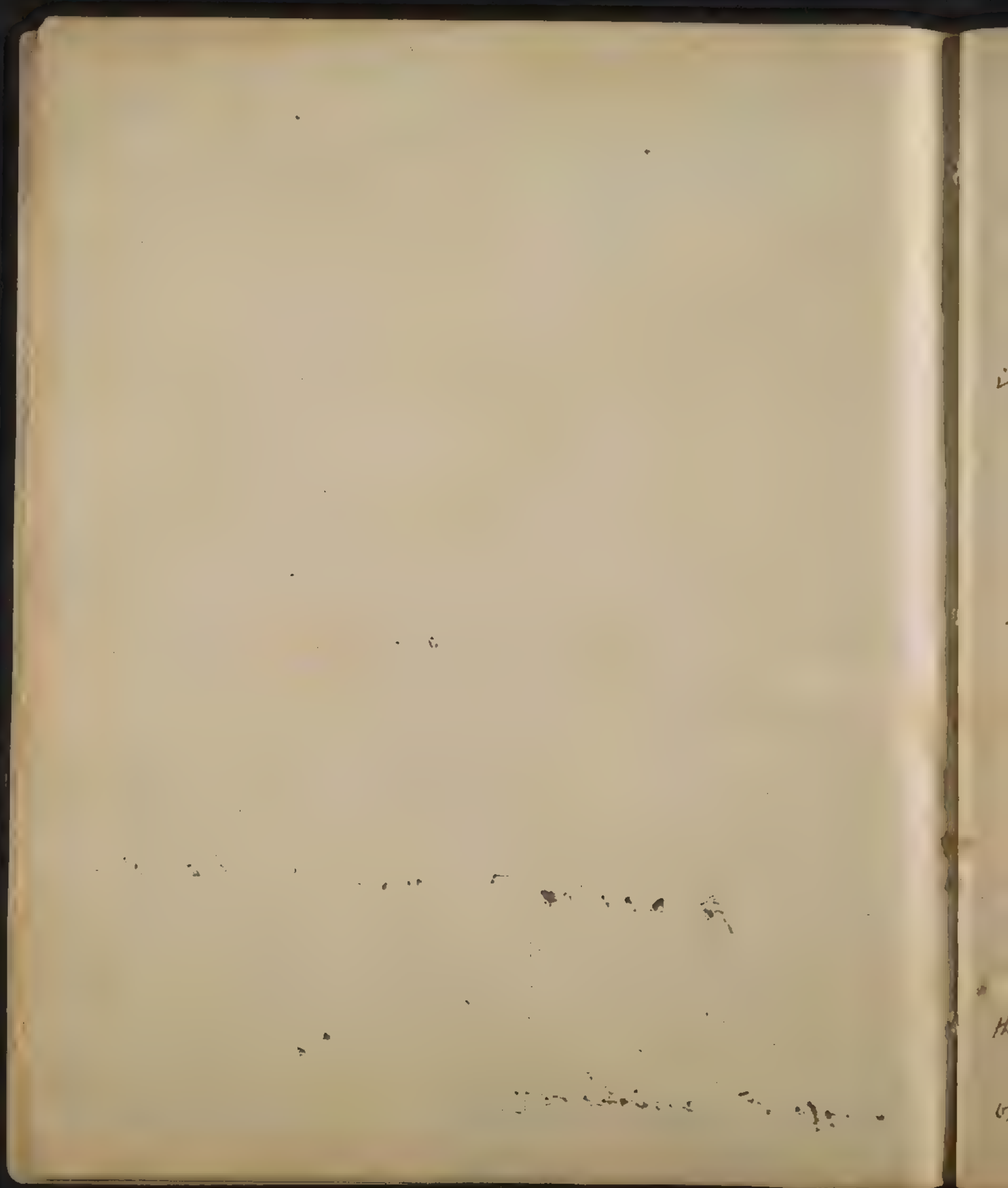


the system. 3 From the effects of cold
 in certain diseases being so exactly
 analogous to the effects of certain
 sedative medicines such as bleeding -
 purging - and low diet. - ~~It~~ ^{It} ~~They all~~
 acts by inducing ~~directly~~ ^{the} debility. This
 has often been demonstrated in in-
 flamm^y fevers - small pox - ^{tonic} mania
 & many other diseases of too much
 action. -

I know it may be said here in
 favor of the stimulating power of cold,
 that when we feel much debilitated by
 heat in summer, a sudden change
 in the air to a cooler temperature
 carries off that debility. Does not the
 cool air here act by bracing the



body? - I answer - no, - To understand
 the meaning of this phenomenon, read
 - Let what was said of the effects of heat
 - It always produces ~~indirect debility~~ ^{depression}
 by its excess. Let us suppose healthy
 excitement to depend upon 75° of
 heat according to Fahrenheit's Scale. now
 supposing the Φ should rise to 95° or 100° ,
~~indirect debility~~ ^{depression} would immediately
 be brought on ^{the system} ~~the system~~ ^{State} of the system,
 let cool air be applied to the body suf-
 - ficient to abstract the 20 or 25°
 of ^{heat} ~~which~~ we have been added to the
 75° , the body will immediately re-
 - turn to its healthy point of excite-
 - ment, in consequence of which



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.....

it ^{raised} ~~removed~~ by ^{stimulus} ~~of~~ ^{Depression} ~~Depression~~. This depends
upon those degrees of pain being abstracted
- ~~which produced the indirect debility~~
- Is the system ^{uncommonly weak} ~~is languid~~ ^{that} in
the beginning of a bilious fever, ~~that~~ This frequently
depends on ^{Depression} ~~indirect debility~~. - Is this
weakness removed by an emetic?
This depends upon the abstraction of
the stimulus of the bile from the
Stomach which produced the ^{Depression} ~~indirect~~
~~debility~~. - ~~I am disposed to suspect~~ ^{sometimes}
~~that~~ The weak pulse which occurs
in the beginning of Palsy & apoplexy,
is frequently produced in like man-
- ner by ^{great Depression} ~~indirect debility~~, ^{hence} ~~but~~
is the
of ~~even in such cases would be~~

✓ It affects the lungs breast when
very intense with great pain. This
was sensibly felt by the Scandinavians
who went to measure a degree near the
North pole. —

a most effectual remedy to remove
 it ^{It acts} by abstracting excess of stimulus;
 than the usual stimulating remedies
 which are prescribed in that state
 of the system. I have heard ^{Dr. Milne}
 once saved a patient in an Apoplexy
 who had this weak & slow pulse by
 taking from him ~~his~~ of blood. The
 pulse sometimes descends to 40 strokes
 in a minute, & is again so weak as to
 scarcely be perceptible. —

I shall now proceed to mention
 the ^{positive} effects of cold upon different parts
 of the system.

1 On the Arterial system it produces
 debility and excitability. It ^{while it} appears
 to weaken the existing fibres, it seems
 to increase the cohesion of the simple
 fibres of the body. It disposes to all
 kinds of fever, even Intermittent.

✓ This argument to be true, should ~~be~~^{be}
reciprocal in its influence upon the master
as well as the slave, for the effects of cold
are the same upon the wills of each of them.

+ a stimulating power in cold, but this
is not the case. The pain is the effect of
the reaction of the system to such a
degree as to produce morbid excitement in
the part affected. In some instances the heat
of the body ~~is attracted~~^{is repelled} to the cold part in
so much force in order to equalize itself
that it becomes the cause of that morbid
excitement & pain. It even produces infl
inflammation in some cases. ~~By~~ By

2 It produces languor & indolence position
to motion in the ~~muscles~~ organs of vo-
luntary motion, - hence some writers
have said that the inhabitants of
cold countries ~~think~~ like those of warm,
were made to be slaves. - having no
wills to ~~move~~ ^{stimulate} them to exercise, they
say that they should be stimulated
into action by the wills of ^{a master.} ~~these people.~~

3 It ~~depresses~~ ^{affects} the nervous
system, & when very intense, ^{with} ~~it~~
~~causes~~ pain, in the ~~head~~ ^{whether excited, in the head or limbs} - Sleepiness &
death. - ~~This~~ Pain has been ascribed to +

4 It invigorates the ~~the~~ appetite, especially
for animal food. Horses eat more
in cold than in warm weather. The
stimulus of blunnet serves to

The long application of cold, possibility is
so far destroyed that wounds upon the
soles of the feet from broken glass ex-
cite no pain. This has been noticed
by Meade in his travels to the north
extremity of our country.

✓ Hence it is said to be stimulating - but
the stimulus is from other causes to
obviate its debility. It frequently
increases the secretion & flow of
urine - hence St. Denis's
mode of using it. —

counteract the debility induced by

the cold. It ~~even~~ awakens appetite in the middle of the night - in hot climates.

5 It weakens the Venereal Appetite.

Perhaps this languor in this appetite may arise from the reflection of the difficulty of ^{supporting} children in a country where provisions are less abundant than in warm countries.

6 It renders sweating difficult, and uncommon, but when so moderate as to prompt to exercise - it promotes insensible perspiration. It produces a dark color in the skin.

7 It is unfavourable to vision, but this is probably owing to its being generally accompanied with ^{the} reflections of the rays of light from the snow.

8 Cold debilitates the faculties of

9 v It is said to ~~diagnose~~ produce the
Scurvy. This ^{disease} depends partly on
weak solids, & partly on vitiated
fluids. If the want of sufficient
exercise may weaken the solids, &
an undue proportion of animal
food may induce a morbid acrimony
in the fluids - But other causes to be
named hereafter must cooperate w:
cold to produce the Scurvy. + go to x, p 66
I proceed to ~~the~~ p: 68.]

+ 10 fold
~~these remains, one same effect~~
~~of cold upon the body to be seen~~
~~is proved in this place, & that is, after~~
that degree which by ^{when used beyond}
induces palsies, & contracting ~~of~~ ^{the}
the vessels; ~~it~~ it produces a

the mind, but this is probably owing to the languor it imposes on the body. v

= These are the ordinary effects of cold. But when it is ~~just succeeded by heat~~ ^{succeeded by the intense} heat of summer ~~generally becomes~~ ^{generally} ~~always predisposes to a violent course~~ of inflammation & fever. - it generally produces a train of bilious & febrile diseases. - I have twice seen several hundred people indisposed in our city from ~~the~~ ^{the weather} cold nights ~~as~~ coming on in a single night in the month of August. The difference in the Thermom^r in a few hours was from 20° to 30° : - The ~~prevailing~~ ^{prevailing} heat now shall be ~~opposite~~ ^{opposite} for the cold being so differently here from ~~as~~ it does in

the native of a hot climate who visits a
 cold one? - I answer, that the duration
 of previous heat, being only for a single
 summer, is too short to produce insensibility
 in the sentient extremities of the nerves, -
 on the contrary it rather produces a proter-
 natural ^{sensibility} ~~excitability~~ - and some tone ^{wh} tone
 - & excited by the sudden action of the cold,
 the loss of that degree of
~~hence uncommon~~ debility which is
 succeeded by
~~attended with~~ pain - & hence a fever from
 the slightest irritating cause such as
 motion - or perhaps even thinking after-
 wards. ✓ Much is ascribed in these
 cases to a sudden obstruction of the
~~It may have some~~
~~Perspiration. It is doubtless a very effect,~~
~~but it is not the cause of the fever.~~
 Perhaps its action ^{on} the pores may be
 the exciting cause of the fever, - or perhaps
 the cold acts only by destroying the ^{equilibrium} of the
 system.

more visible, & more
by remarking that there is ~~probably~~ ^{more} Animal
& more visible
suffering from cold, than from any other
evil that afflicts the world. ~~The whole brute~~
~~animal creation~~
groans with ~~man~~ under its effects upon
sensation, health & life. Who can calculate
the sufferings of sailors, soldiers & the laboring poor
from ~~being~~ out of doors, and from the want of fuel &
clothing within doors? But - the sufferings of animal,

✓ Pontoppidan gives us the same
influence of the
Account of the climate of Norway
upon the human body, He says:
inflammations are uncommon there
in the winter. - The month of Dec^r
1798 very cold & very healthy.

+ nature do not end here. ~~The whole~~ ^{perhaps}
many thousands ~~of~~ ^{perhaps} millions
beasts & ~~thousands~~ ^{thousands} ~~of~~ ^{of} insects
die of cold every year, &
& Birds ~~may~~ ^{may} the whole brute creation
in cold climates, groans with man ^{under} its
painful ^{& distressing} effects upon sensation, health
and life. The diseases from cold are more

Nov 58.

Weather uniformly cold is generally healthy. The most healthy winters I have known in Philadelphia have been the coldest. I first observed this in the year of '64, and have witnessed it twice since. Diseases of all kinds are ^{looked upon} as it were ~~known~~ in Canada during the winter, but only once in many years when the air is thrown by a visit of warm weather. Dr. Guthrie speaks in high terms of the health & pleasure which reign in Russia during the winter. Even the Catarrh (the constant attendant of our variable winters) is unknown during the cold weather of that Northern Country. The return of Spring ^{in these cold countries} generally produces fevers

numerous, than from any other cause.
It is ~~more~~ at times a remote - ~~and~~
predisposing - or an exciting cause of
nearly all fevers, and however strange
it may sound it is more so in warm
than in cold climates. The night air
in the Sea Egypt - and the East & West
Indies awakens into action the mias-
mata which produce nearly all the
plagues - & yellow fevers & Liver Com-
plaints of those countries. In short
there exists not a greater enemy to
the health & life of man than ~~cold~~.
go to p 66 #

but these fevers are of a peculiar
 kind. They are ^{unlike the common} ~~by a common~~ in
 flame: ~~the~~ ^{the} fevers of middle lati-
 tudes, and in many seasons they
 rapidly ^{in the} ~~these~~ ^{gangrenous} of a putrid nature. ~~How~~ Now
 shall we account for this? I an-
 swer, that the Arteries by being
 long under the pressure of the redative
 action of Cold, lose that elasticity,
 and excitability ^{which is the foundation}
 of inflammatory Action, and which is
 left to be destroyed or suspended
 in climates where the Action of the
 Cold is of a more transitory nature.
 In the diseases of cold climates, as
 well as warm, we see are generated

at.
V You will please to mark here
the difference between the short &
long application of

V - Hence we find the inhabitants
of Iceland & of other cold countries bear
the heat of a Vapor bath ^{at} ~~at~~ ^{of} nearly 200°
without feeling any painful sensations
from it; and

H The relative effects of cold are fur-
ther evinced by certain Animals perish-
ing in a degree of cold in the fall,
which revives them in the Spring. In
the former Season the excitability of their
Systems is exhausted by the previous heat
of Summer - in the latter it is accumu-
lated by the previous cold of winter. I
marked ^{formerly that} the body suffers much less in passing from
extreme heat to cold, than from extreme cold to heat.

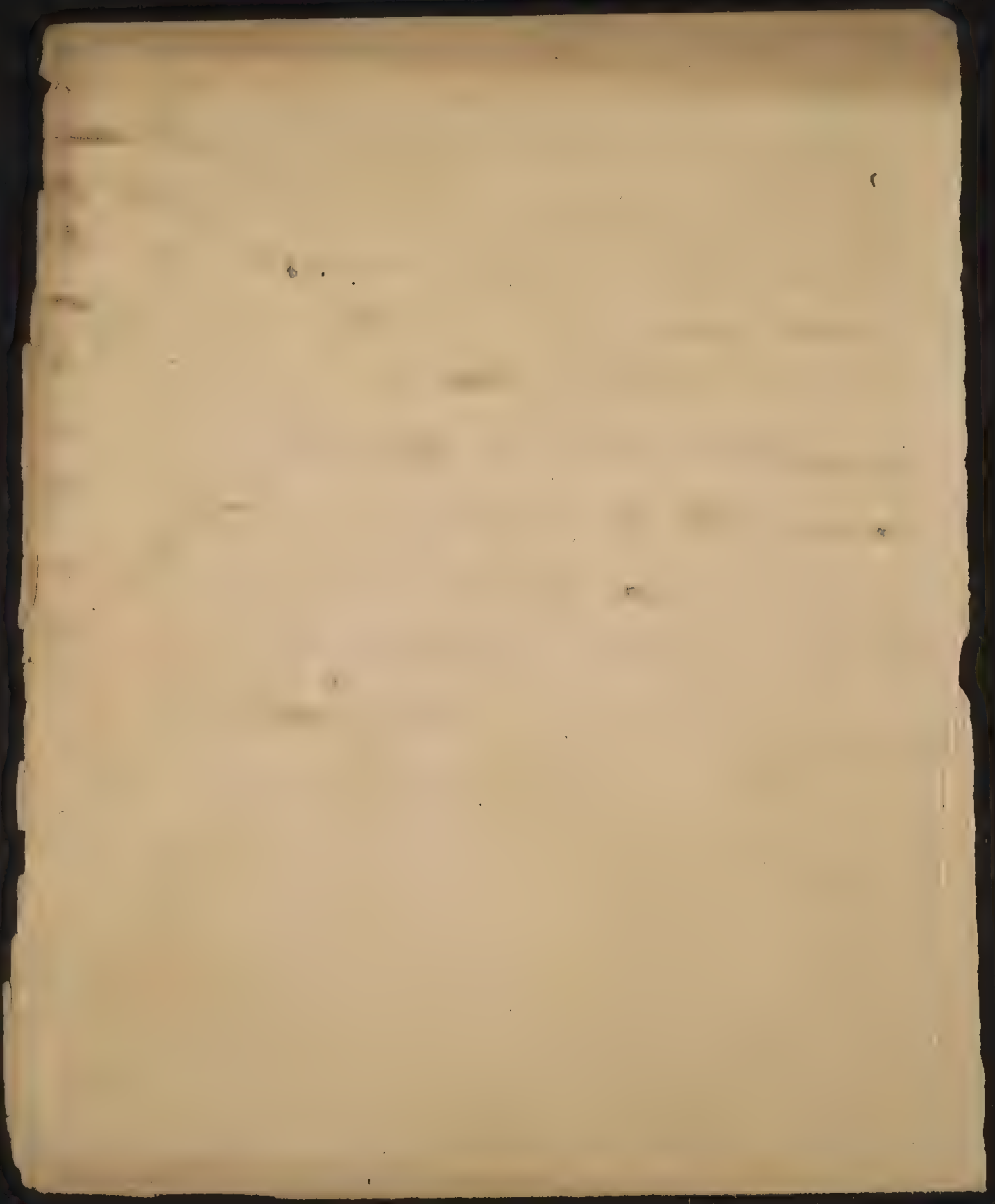
60

in one season, & brought forth in
another. * #

o Cold produces
~~the same~~ After a while the
same insensibility to heat, that it
does to itself. ^{see opposite to p 55.} Hence we find the Na-
tives of Europe bear the heat of the
West Indies much better than the
Natives of the Islands. This insensibi-
lity to heat, is only to be acquired by
the long action of cold, alternated
with little heat, on the system. In
a Climate like ours, we lose the
insensibility to cold contracted by a
single winter, by each succeeding
Summer. The man therefore who
attempts to fortify himself against

p 60.

This was exemplified in the Experiment
made by Dr Hodge & Dr Blayden ~~who~~
formerly mentioned, who tho' they felt the
cold very sensibly after coming out of their
heated room, were not indisposed from
it. Aesbi tells us ~~that~~ in travelling thro'
Swedish Finland, he often saw persons
come suddenly out of a vapor bath heated
to nearly 200, and stand half an hour
almost naked in the open air when the
ground was covered with snow, & the ~~blue~~
0, without feeling the least inconvenience
from the cold. — ©



✓ You will please to mark here
the difference between the short and
long application of heat & cold to
the body, ~~the~~ when succeeded by each other.
Cold succeeding the application of heat to
the body for a short time, produces fevers
coleras &c - But when it succeeds the
long application of ^{heat} ~~it~~ - it produces scarcely
any effects on the body, & is less sensible
than in other circumstances of the
system ^{from causes formerly mentioned, viz exposure} - Again - heat succeeding the short
application of cold, produces inflammation:
fevers - But when it succeeds the long
application of cold for 5 or 6 months it
produces fevers of a ^{chronic} ~~remittent~~ or
^{gangrenous} ~~putrid~~ type. ~~It would seem as if~~
indirect and direct extensibility were
alike destroyed by the long continuance

the cold by ^{light} ~~thin~~ clothing, will
have his work to begin & do over
again every winter. If he ^{should} acquire
his long sought for insensibility ^{to} it
cold, it will be in the same way that
a farmer taught his horse to live
without eating. As soon as the poor
beast became perfectly inured to his
own discipline, he died. ✓

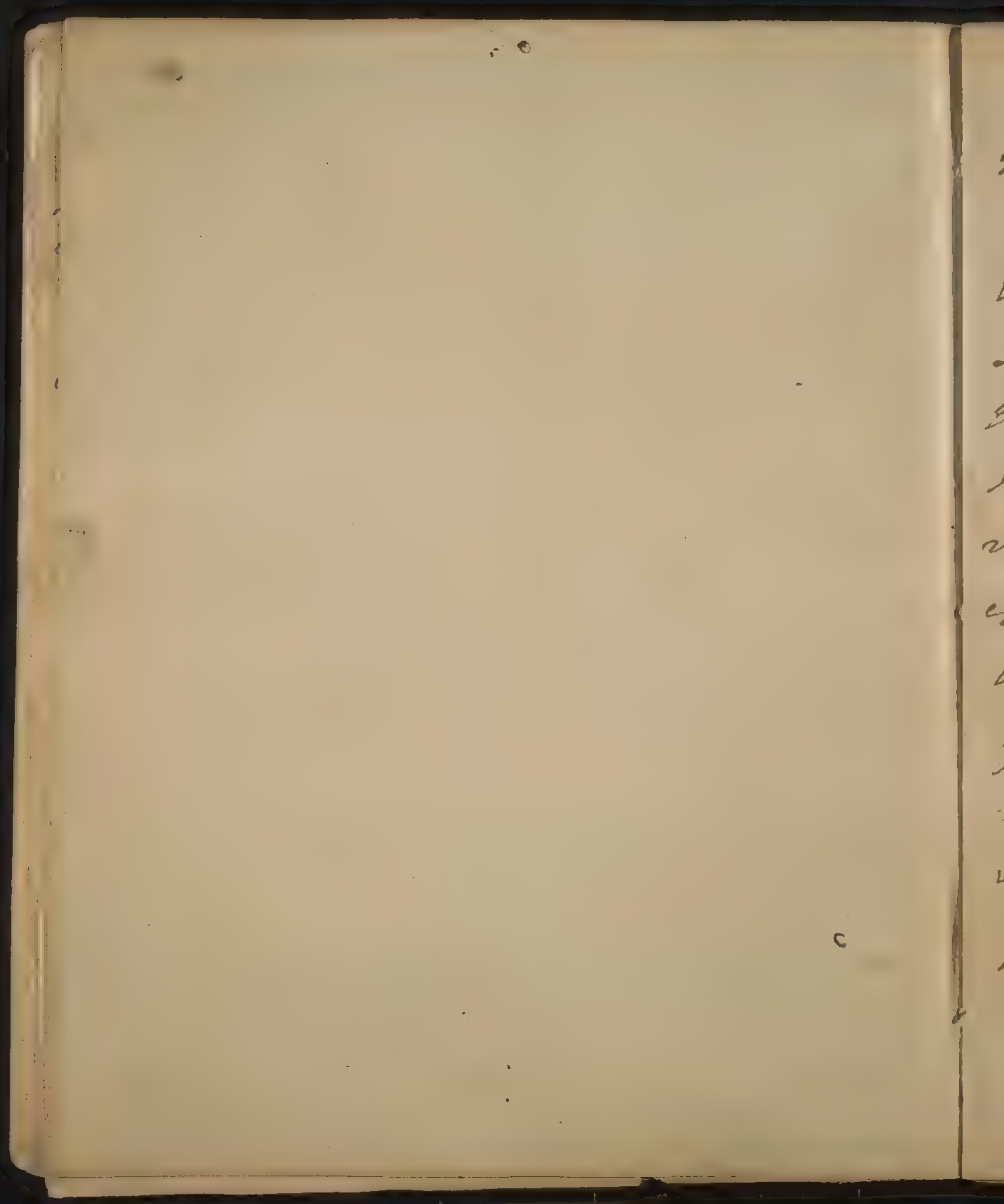
The numerous & morbid effects
of cold ~~in the~~ ~~of~~ ~~beats~~ are not
necessarily connected with a vicinity
to the poles. On the contrary - health
and long life appear to be as com-
mon in cold countries as in
warm, where men live agreeably
to reason. ~~At~~ Where life is contracted,

of debility / = supposes that more
people perish from the morbid
effects of cold succeding to heat, than
from the plague. This opinion is supported
by many other authorities. Dr Boerhaave says
"however paradoxical it may appear cold
is the cause of almost all the diseases of
hot climates, to which alone Climate is
ascessary." p. 71. He adds further as a rea-
son for this, that every person being weak
from heat is under a predisposition to
disease from cold.

Sir Wm Temple says it must not
 be ascribed to cold, but to the excessive
 Use of those stimuli such as Aidents
 Spirits, - animal food - & dancing,
 which are all used to counteract it.
 - ~~Instances~~ where ^{the} winters are ^{long} short
 and ~~not~~ very ~~cold~~ cold, there are in
 many countries, such provisions
 made against it as that it becomes
 the pleasantest season in the year.
~~Thick~~ Thick walls, - double windows
 - and stoves ~~at home~~ at home - and
 furs and footstoves ^{in the open air,} ~~abroad~~ afford an
 ample protection from the cold in
 Canada and Russia. This is so much
 the case, that DeGenthere tells us
 that the Russians complain ^{very much} ~~little~~

✓ In that country the effects of cold
are obviated by stoves which pervade by
means of pipes every room in the house -
- by double glass windows - and by being
enveloped in ^{masked} furs, when they exposed
themselves to the air.

of the difference between a winter
 spent in the Southern parts of Europe
 and in ^{their} own country.. I once
 heard a lady who had passed a winter
 in Canada say that she had never
 felt so little cold in a winter in her
 life before. From these facts it would
 appear, that cold produces diseases in
 Northern countries, chiefly where they
 do not conform to the weather in
 the structure of their houses, ^{in the} application of fuel in
 their dress or manner of living, &
 that ^{cold} it is most injurious when it is
 alternated with heat, or combined
 with moisture. Hence we find the
 most acute inflammatory diseases produ-
 ced by it in middle latitudes. It is
 difficult to say in what latitude, it



produces these diseases in the greatest
 number & most acute degree, for
 a comparison will be just only
 when it is made between a people in the
 same states of society. — In Britain
 the variable climate of Britain we
 should expect to find them ~~very~~^{great}
 most frequently, but luxury — and
 effemacy have nearly banished
 blood from that country. Influen-
 zers are as yet very acute in Penn-
 sylvania, ~~therefore~~ our citizens are
 in the same state of society that the
 people of England were in Dr.
 Sydenham's time, when Bleeding
 small beer, & cool air cured nearly
 all their diseases. If our fellow



citizens on the Potomac, & even
 in the States beyond it, do not bear
 bleeding as plentifully as we do. If
 we are disposed to ascribe it to their more
 indolent and luxurious mode of living,
 for in more southern climates the
 frequent use of the
 lancet is the only remedy for the
 diseases of cool weather. Dr. Hays
 seldom drew less than ^{from 316 to} 320 of blood in
 a pleurisy in Minorca. Dr. Ferri
 says that nothing but copious Ph.
 cured the pleurisies of ^{the negroes in} Jamaica was
 in those cases where the pulse was
 scarcely perceptible. & Dr. Hays informed
 me that after a north west wind,
 the ~~pleurisy~~ ^{pleurisy} ~~inflammation~~ ^{fevers of} ~~the disease~~ ^{of} ~~the~~ ^{the} ~~pleurisy~~ ^{pleurisy} required as
 plentiful bleeding as the diseases of

✓ The climate therefore of middle latitudes is not necessarily unhealthy. Even the frequent changes according to Dr. Huxham may be considered salutary. It only requires more care & the exercise of more reason to enjoy health in such latitudes than in less variable climates.

Dr. Sydenham's remark - nearly all fairs from neglect &c in beds: -

+ too a man died in cold at 81 or 9° below 0 - when asleep - who lives when awake & in action ^{in a degree} when the of cold is at 30° below 0.

this country -

The effects of the sudden transitions of the air from heat to cold, & cold to heat on the body, do not necessarily produce diseases. They may be prevented by ^{a careful} degrees of caution in accommodations of our dress and bed cloaths to the changes in the weather. This is more necessary in summer than in winter. I have known many thousand people indisposed from wearing too thin cloaths or sleeping under too few bed cloaths, but never one person from ^{an excess} wearing in either of those articles. ^{go on to + p: 68}

& The cold acts most powerfully on the system in the sleeping, than in the waking state. Hence ^{the foundation of} more out of 10 fevers is laid in the night, & hence



Cold acts more powerfully upon the body when ~~usually~~ ^{the} stomach is empty than when it is full of Aliment - hence jaundice and frost frequently go together in sailors who suffer from the scurvy.

Old people suffer more from the cold than persons in middle life. Hence the reason why they are so often found paralytic, or dead in their beds in very cold spells of weather.

Cold acts powerfully upon persons addicted to the use of spirituous liquors. ^{too well}

Hence the reason why they often ~~quit~~ ^{die} the bills of mortality in the winter ~~these times to a cold bright or~~

months. Three notorious drunkards

~~have~~ died in our city in the course ^{of the last few weeks} ~~of the last few weeks~~ ^{two of them} during the coldest week in ~~last~~ ^{the winter of 1791-2}

✓ fact of Lake Superior by 3 - never
frees - vapor - frees in the air & cuts
the face. See p: 88. of 4th Ann: plumb.

~~namethan [unclear] Jan: 1792~~, & all with
^{originating from} great Diseases of great debility. Dmn.
 hands are generally chilly, when not under the
~~Child even [unclear] from the vigor of~~
~~these from use of strong drink.~~
~~the stimulus strong~~ Cold acts but
 feebly upon Children, from the vigor
 of their stimuli. I have heard of an
 Indian woman being found frozen
 to death ~~but~~ with a living Child on
 her back. — return to = p: 56.

+ Moisture increases the sedative
 effects of Cold by carrying off more
 of the heat of the body. ~~The~~ The Cold of
 Great Britain at 30° is much more
 disagreeable than the Cold of Pennsylvania
 at 10°. The Russian sailors
 who spent part of the winter of 1778
 at Plymouth declared that

The air of Holland owes its unhealthy quality to its moisture. This is so great in the evening & at night as to make the Dregs of winter necessary in midsummer. - Dr Franklin denies that we take cold from moisture even from sleeping in wet sheets - but this is contrary to ^{reason} ~~all~~ ^{very} observations. (11)

✓ The cold hand of a physician will often produce a short rigor in the whole body of a patient, & I know a gentleman who ~~labours under~~ is subject to a cough, who can excite a fit of coughing at any time in the night only by putting his hand out of bed. Gollymer.

There ^{was lately} is an old man in this city of the name of Godfrey Willren who can predict the approach of moisture, that is rain, in the atmosphere by a sickness at his stomach. A similar fact is related by Dr Darwin ^{many} Birds ~~probably~~ have this sympathy with

69

^{moist}
the cold of England ³ was far more
distressing, & insupportable than the
coldest weather they had ever felt in
Ruscia. — †

Cold acts more or less certainly,
~~upon the body~~, according as it acts on
the whole or a part of the body, or upon
a part which has been confined from,
or exposed to the action of the Air.
Cold feet often produce Catarrh - Colic -
and even palsy & Apoplexy. A current
of Air against the back often produces a
tumor & stiffness & inflammⁿ: in that
part of the body, and ^{or in other words a trismus} ~~in other words~~ a
or spastic tetanus.
young woman who caught cold only
by leaving off a ribbon which she
rich Bellegas takes cold by wearing shoes & slippers -
usually wore on her cap. The Abstraction
of Stimulus in a part, cold in these

~~I told inducing gangrene on the
limbs. How? - the remedy - accom-
modated to extensibility I.~~

~~approaching rain - hence the peculiar
& motious
Noises they utter before it comes. Ducks
seldom fail to indicate wet weather by
rising from the ground & clapping their
Wings. This sympathy natural to birds
is acquired in many Chronic Diseases to
all the changes in the weather in the
human Species. It is a kind of ~~superadded~~
sense. ~~go to p 71.0~~ In health we have a
sensation of an approaching fall of snow.
- Hence the common saying - "It feels like
snow." go to p 71.0~~

cases, excites the action of other humors
to restore the equilibrium of y^e system.
The fever is the effect of too much
action for this purpose. It is from
having so often seen the ill effects of cold
but - that I seldom give any advice
in a chronic disease, ~~that I do not~~ without
charging my patients to keep their
feet ^{the extremities of} warm - for by the feet & the mouth,
I believe we receive 9 out of 10 of all
the diseases to which the human body
is exposed. -

~~How far have we viewed the effects
of heat and cold, in their simple states,
and combined with moisture.~~

~~Label~~ The same degree of cold are
more sensibly felt in windy than
in calm weather - owing to the

positive & relative
✓ The effects of heat and cold are very dif-
ferent in sickness from health, & vary
according to the stages & states of diseases. of
this hereafter. ~~turn back to~~ they not
only suffer from their presence, but
they have a premonition of their approach.
turn back to p. 69 #

U Thus in the winter they dispose to
diseases of the head - in the spring to ^{diseases} the
lungs, and in the summer & autumn to
the alimentary canal. ^{the actions} These seasons have
of the seasons on ^{health &} ~~human~~ life have been
compared to the different stages of human
life. ~~winter~~ The winter has been compared
to the infancy - spring to youth - summer
to manhood - & autumn to old age.
It is remarkable the diseases produced by
each, are the diseases of those 4 stages of life.

Wind carrying off the insensible heat of
 the body discharged with the insen-
 -sible perspiration. I think I have
 oftener known Catarrhs & other in-
 -flamed affections induced by windy
 than calm cold weather. — V

Thus far have we examined the
 effects of ^{the air} ~~heat & cold~~ upon the body,
 as far as they relate to their sensible
 qualities. But they both act differently
 in different seasons. ^U Again heat & cold
 act differently in
 different months in all middle
 latitudes. — They act differently in
 towns & countries — in cultivated
 & uncultivated countries, but this de-
 -pends ^{in part} on the combination of the
 air with certain ~~islands~~ evaporation
 -latitudes

~~V. Bring in winds from all quarters in
diff countries & their influence on health next
year.~~

20th Jan 1841

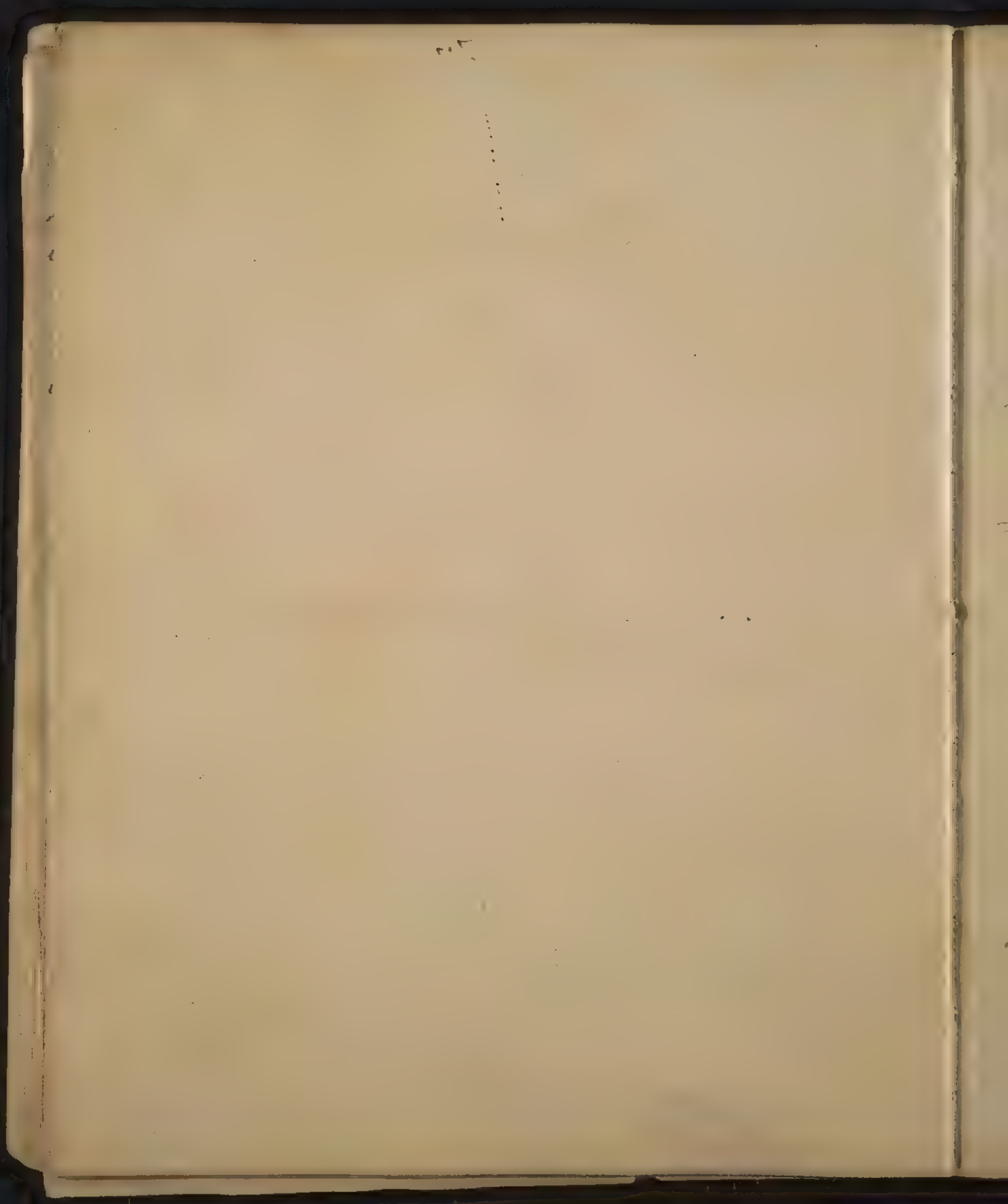
It therefore will come in ^{under} our next
 head. I shall only mention the effects
 of the sensible ^{qualities} effects of the air in
 different ^{seasons &} months. ~~the~~ In ~~some~~ one of
 the seasons, the air is rendered ~~more~~ ^{unhealthy}
 by mixture ^{the} with exhalations. This shall
 be mentioned in its proper place.

① To exhibit the influence of seasons
 and months in a climate nearly similar
 to our own, I shall furnish you with
 an extract of a Journal of the deaths
 in the Parish of St Nicolas in Boulogne
 on the sea, ^{in the lat. of 50°} between the years 1776 and
 the year 1783. It is taken from Daignan's
 tables of the variety of human life - a
 curious & interesting work lately put
 into my hands by Mr Jefferson, ^{during his residence in this city.} I shall
 first give the amount of all the deaths

v the same taken notice of by Dr
Heberden Jun^r in London. in his work.

in each of the seasons that ~~were~~ are
included in the above mentioned seven
years. In ~~seven~~ the winters 365 - In the
~~spring~~ ^{Spring} 292 - In the summers 277. -

In the Autumn 357. - in all 1291. -
you see here the ^{2nd degree of} ~~greatest~~ mortality is
in the Autumn - owing probably to the
combination of the Air with morbid
exhalations. I have observed the same
^{degree} ~~excess~~ in the mortality in our city in
the Autumn - and from ~~this~~ ^{the} mixture
of morbid effluvia with the Air. - The
next season ^{which there was the greatest} ~~is~~ the number of Deaths is
the winter. This is unlike our Climate
in ordinary years. I suspect some ~~epi-~~
~~demie~~ ^{from contagion} must have cooperated with
the cold in some of the above winters.
- The Influenza - the Measles - and



74
the ^{malignant} ~~pestilence~~ fore throat which prevail
frequently in winter, often swell our
bills of mortality in that season far
above any other season of the year, but
all these act independant of the usual
- ble qualities of the air. —

The Spring & Summer are gene-
- rally the most healthy seasons in
all climates between 50° and 35° —
of latitude.
It is remarkably the case in Pennsylv-
- vania. —

~~Therefore~~ I shall next mention the
influence of every month in the year
upon human life, taken from the
same register of the parish of St Nicolas
by Dr Daigneau. —

In January there died in the course
of seven years 142 persons, of whom



From a review of the influence of the weather in each of these months, it appears that the most sickly of them was Jan. - This is not common in the middle states except from Epidemics - or except in open winters. The principal mortality in this month when intensely cold is among old people and persons previously debilitated by Ardent Spirits. - Feb. and March appear to have been very sickly, nor did the mortality abate much in April. ~~Thus~~ The weather in these months is very variable, and often proves fatal to chronic patients especially to persons afflicted with the consumption. The inflamm^y diseases produced in these months

V Hippocrates expresses the same
idea in other words. He says that
the diseases of winter are seldom
cured till midsummer, & the dis-
eases of summer are seldom cured
before the middle of winter. Van.
~~An important observation~~ - ^{as} ~~directly~~ says
that the time in w: ^{the} ~~season~~ ^{of} ~~feverish~~ ^{the} ~~begin~~ ^{the} ~~is~~
begin is at the vernal & autumnal equinoxes,
but that they are antedated, ^{postposed} ~~of~~ ~~the~~
the weather - hence the former ^{sometimes} appear in Dec:
& the latter early in Sep? - They are according to

seldom prove fatal in our climate.

June and July are the most healthy months in the year. The same obser-

vation applies to the climate of Penn-

sylvania. ^{The latter} ~~July~~ end of July is

sometimes fatal to children - but

I have uniformly observed June to be

the healthiest month in ^{in this city.} the year.

~~The same~~ Dr. Sydenham says that

the diseases of winter spend themselves

in June - and the diseases of summer

in February. I believe there is a founda-

tion for ^{the same remark} ~~this~~ remark in ^{the middle} ~~the middle~~

States of America. ^{over} ~~the~~

- Most of fevers begin bleeding in

May, and most of ~~the~~ the fevers

of ~~the~~ Decem^r. Jan^y. and Feb. exhib-

it marks of the remitting & inter-

mitting

Pigeon most frequently antedated. Hence he
says a medical Spring should begin on the
12th of Feb: Summer on the 12th of May. Autumn
on the 12th of August, and Winter on the 12th
of November. —

fevers arise especially in discharges of bile. Now - according to this remark
^{breathings of the}
 the month of June may be ascribed
 to a kind of solstice in diseases. - They
 seem to pause for a few weeks - but it is
 only to ^{it} change one set of destroying ~~in-~~
~~struments~~ ^{weapons} for another. -

The month of ~~Sept~~ August is more sickly
 by our table than July - 85 - The
 proportion of deaths in that month
 is much greater in our city.

The months of Septem^r - Octob^r and
 Novem^r are next to ^{their} in ~~fatality~~ ^{mortality}
 - lity to the winter months. This is
 probably owing in part to exhal-
 - cations, but much of it may be as-
 - cribed to the contrast between the

✓ This air by its coldness & dampness
~~renders riding in the night much~~
~~more fatiguing than in the day time,~~
~~for they both produce great direct debility.~~
~~Mr Bruce speaks of the Damp Night Air~~
~~after a hot day affecting even the mind,~~
~~for he says the Sailors who conducted~~
~~him up the Nile, always discovered strong~~
~~marks of cowardice as soon as the chilling~~
~~night air began to act on their bodies.~~
~~Colds are more frequently taken by ex-~~
~~-posure to the night air than in any~~
~~other way. In Spain it is often caught~~
~~by sneezing. Hence says Brydone it~~
~~is gallant to make love in that country~~
~~only in a hoarse voice. - The yellow~~
~~fever is often excited by the night air~~
~~than by any other cause -~~

dry & warm air of the day, & the cold
 and moist air of the night. — The
 sickly and mortal season begins in
 Pennsylvania about the 20th of
 August. It is partly occasioned by
 exhalations, but chiefly by the damp
 evening air to which our citizens
 expose themselves in their summer
 dresses. The quantity of dew which
 falls after this time is so great as
 to resemble ~~the~~ a gentle rain. It fre-
 -quently sets Springs which have
 been dried up for six weeks a flow-
 -ing. — This ^{fecundity &c.} vivacity generally
 continues till the frosty ^{nights} come on,
 Unless heavy rains should fall in
 the mean while, for they both alike

~~✓ The evening air is from the~~

✓ ~~The~~ Under the head of the sensible qualities of the air I mentioned its rarity & density.

Air highly rarefied such as exists on the summit of ~~the~~ ^{very} high mountains ~~is~~ ^{produces} many disabling symptoms. It such as

great muscular weakness. ~~These~~ ^{hence} persons in ascending them near their summits are often obliged to stop in order to rest. ~~Even~~ ^{This}

~~the mules~~ has often been felt on the Alps. Even the mules which ascended them were affected with a similar immobility of their limbs with men, and with great difficulty of breathing - panting, & the emission of plaintive cries. Saussure

~~was in~~ ^{was on the summit of} Mount Blanc in Switzerland that he could not advance 15 or 16 steps without stopping to take

breath, the \bar{y} at this time in the Barometer
stood at 12 inches. ~~Other~~ effects of these great
altitudes ^{are} a quickness of pulse - palpitation
of the heart - sickness of the stomach - loss
- thing of food - ~~on~~ ^{propensity} great thirst, ~~but~~
have an aversion to spirituous liquors. All these
effects of breathing this rare atmosphere go,

& nor was there as yet any quantity
of vegetable matter on the ground ~~to~~
putrefy, & mix ^{to} the animal matters.

+ off after resting a few minutes, but
return with the least exertion. ~~all~~ These
~~symptoms~~ have been attributed to a
deficiency of oxygen in the upper regions of the
air, and a ^{most rapid} consumption of ~~it beyond the~~
~~proportion~~ the combustible matter in the
blood - such as I said formerly constituted
the ^{impure} air discharged by Respiration. In
addition to the effects above mentioned,
I ^{takes notice of} ~~observe~~ two others viz
Sleepiness, & great pain from the action

continued for some time. I said that
moisture must be combined with this
heat, for the rays of the sun shall
nothing unwholesome from the dry

ground, nor from marshy ground when
it is ^{completely} covered with ^{the same with 10 leagues in} a bed of water of
^{Egypt.}

So to show that heat is essential to
the production of marsh miasmata, I
shall relate the following fact. Some years

ago the meadows below this city were
^{in the month of April} overflowed, and many animals as well

as fish were left dead on the meadows
after the recede of the river. In vain was

Sichrups looked for after it - for all
yet there was not heat eno to pu-

-trify these animal matters, or to ex-

-hale them in the air. This fact was

of the Rays of the Sun shining directly upon
the skin. + in its changes from different degrees

the skin? in its changes from different degrees
of density & rarity. The air is so dense as to
create great changes in the body, except it

~~become~~ sometimes disorders the body. Invalids
are most sensible of it. Mulcaill a French

writer ascribes a number of sudden Deaths

which occurred at Privies in 1747 to a

Discontinuation in
height of the air. Old
height 28 to 28.8 miles - Jack
height 28 to 28.8 miles - Jack

~~The 2nd & 3rd fell suddenly from 28 to 26.8~~
~~The 2nd & 3rd fell suddenly from 28 to 26.8~~
~~The 2nd & 3rd fell suddenly from 28 to 26.8~~

That is ~~an~~ ^{with a dose of 1000 grains} ~~in the~~ Pains of Rheumatic pains

one after made worse by a sudden淋症.

-tion of its weight. - ~~CP 17.82~~

+ Dr Baron Humboldt who ascended to the
summit of the Jumborasso, ~~the high a mountain~~
-tain 20,000 feet above the level of ^{in S. America} mean sea level.

of course the highest mountain in the world, ^{me}

the rarity of the Air produced he informed

beys shapes from ^{nose} his mouth & lips, a

red^{ness} of his eyes, Achneep at his stomach,

of a pain in his breast which continued

was communicated 82

Once proposed to me by the late Dr. Bond, but without the explanation of ^{some} ~~some~~ years ago, a similar fresh happened in those meadows in the month of May or June. From the full operation of heat at that time, & guided by the event of ^{just mentioned} the inundation in April I ventured to predict that no extraordinary fresh-
ness would follow, and the issue was agreeable to this opinion. Many facts might be mentioned ~~to~~ to prove that exhalations ^{fluidity} from fluid bodies of water do not produce diseases. Mr. Bruce ~~in~~ remarks in his travels that rainy seasons w^h perfectly covered the low grounds were never unhealthy in one of the sickly

V & Dazilles in his Account of the
diseases of the negroes remarks that
at Cayenne when ^{there is much rain &} the morasses are
supply overflowed, the people are most
healthy - but at St Domingo it is the
reverse - When there is much rain,
and no morasses, ^{to} overflowed p: 10

= several days afterwards. His pulse
of cold was very great, altho' the ♀ was
between 40 & 50 of Fahrenheit. By his
indication the quantity of Oxygen was
reduced to 19 parts in the 100. That of
the pineapples & softness of the frog. ~~back to p: 82~~
go to p: 82. 0

~~In Water the variations of
Baromet. in Travelled nearly
the last p: 30~~

Air excessive in Density, [that is above 28] by
compressing the lungs renders the reflux of the

Countries which he visited. In the Delaware state heavy rains by overflowing the low grounds have in one instance prevented a sickly fall. In the same

season bilious fevers were common in the high grounds of Pennsylvania - for here the rain

was only sufficient to produce miasma. Ditto in 1804 saw fevers on banks of the Susquehanna, but these were general on high grounds in middle states. The sicknesses of Antislavery frequent. The same in 1806 - great Rains & drought this states healthy, only depend on very slender circumstances,

which if lightly attended to, lead to a conclusion that there ^{are} no fixed principles

with respect to the generation and action of morbid ~~substances~~ ^{miasmata}. A summer ^{which} perfectly dries the low grounds & on

perfectly covers them with water will

generally be healthy. Superficial obser-

vers ^{do not} who consider heat & rain as

V I have said that heavy rains
which cover the ground with
water prevent ~~exhalation~~ ^{from Davidson in} but
I have mentioned a case in which a
my 4th Vol. of Inquiries
heavy rain promoted exhalation,
i.e. by destroying the green covering
which had ^{completely} covered a pond of stagnant
water. ~~water~~

MB: Humboldt mentions that
Rains on the West Coast of Africa induced fevers - perhaps
from some cause. }
It is remarkable that in 1844

close swamps where there is no
exhalation, there are no bilious
or interminal fevers. The access of the
sun to these swamps is necessary
to their producing disease.

It is most hurtful where salt and
fresh water mix in the Southern States.
melliat.

under relative circumstances, 84
~~generally without success~~, would be led

from this to doubt the efficacy of both
in producing disease, and to ascribe

them to ~~the same~~ ^{they know not what} ~~not what~~ ^{to malarious miasmata & other}
~~quality in the air~~, ^{or importation} ~~as to the fruits of~~
the season, ~~by attending to moderate~~

degrees of rain w^{ch} produce moisture, &
those degrees of heat which do not end =
daily dry the ground, that ~~produce~~ ^{generate} the
effluvia ~~inasmuch as~~ ^{ch} produce bilious

and intermitting fevers. Fresh & salt
water mixed in marshes most apt to produce disease.
= The matters which are exhaled are

of said to be ^{formed from} ~~of a~~ animal & vegetable
matters, but many facts ^{prove} ~~contradict~~ it, as:

~~behold~~ that they are chiefly of vegetable
origin. ~~They operate perhaps~~ ^{are often combined}
~~but each acts separately~~, as I shall say directly, go to

matters ^{printed up} ~~in the neighbourhood~~
of towns without producing a single

Disease. Mr Howard tells the bodies of
 persons who perished with the plague
 at Smyrna ^{in one instance} ~~often~~ putrefied in the open
 air without spreading the disorder. The
 stench of these bodies he says passed ^{this} over
 the Governor's house in a certain
 direction of the wind. Neither human
 or any other animal ^{always} ~~are~~ ^{is} ever
 friendly to health, - or Edin² & Madrid
 would long ago have been depopulated,
 and ^{would} ~~would~~ ^{long ere now} ~~have been~~ removed
 from the neighbourhood of our houses.
 - but putrid weeds of all kinds produce
 fevers. Dr Rogers in his Epidemics of
 Cork ^{describes} ~~mentions~~ a fever from a putrid
 bed of cabbages. After all ~~there is no~~
^{but} ~~putrid~~ ^{putrid} animal matters
 most probable that ~~in~~ ⁱⁿ ~~the~~ ^{the} ~~air~~ ^{air}
 is mixed with ~~in~~ ⁱⁿ ~~the~~ ^{the} ~~air~~ ^{air}

It is remarkable that in swamps
where there are no exhalations people
work & enjoy good health. -

5 It has a putrid fever was lately prod?
in Newbury port in 1796 by the effluvia of
putrid fish & putrefying whale once prod.
an epidemic fever in Holland.

0 What is the nature of these ~~putrid~~ ^{unhealthy} ~~fevers~~ ^{fevers}?

Miasmata? - From the efforts of fire
& burning & in destroying them they
have been supposed to be animated - or
organic bodies. This may be the case, but
it is not very business to decide upon this
question. It is remarkable that mosquitoes
and other insects abound with bilious
fevers. - But later observations have
taught us that in they contain
a large portion of Hydrogen on
which their action depends. -
~~Fevers~~ Bilious fevers which
are produced by miasmata.

circumstances produce diseases. ~~But~~

~~But Pringle has established it.~~ ~~Turn back to 85 -~~

On what part of the body do these ~~micro-~~
turn over to p: 87 1st 2nd
micromata act? On the arterial sys-

tem in which they act as stimulants.

This stimulus in this case is generally

direct only, in which case a fever of
violent
~~excessive~~ action is induced - when the

the stimulus of the micromata exceeds
great ~~the force of~~ ~~the stimulus~~ ~~it produces~~ ~~intermission?~~

indirect debility - hence bilious fevers
great languor -

are often ushered in with syncope - &
& apoplexy. Instances

some times ~~of these~~ are not want-

ing of these micromata producing

sudden death. -

3d Particularly the brain,
They act on the nervous system

probably this the origin of the
sustained inducing head act. and

Bilious fevers ^{chr} are produced by ~~marsh~~ miasmata
are generally accompanied with
Inflamⁿ: or Congestion in the liver,
& wth a preternatural secretion, &
excretion of Bile. Galvani produced
a similar & morbid state of the liver
by injecting Hydrogene into the
Oesophagus of fowles, & afterwards
tying ~~them~~ ^{up the gullet} up untill they died. The
Livers of brute animals which are
killed in the fall when it is bilious
fevers prevail, are generally enlarged,
& sometimes ulcerated, probably
from inhaling the ~~hydrogene~~ ^{gas} of
marsh exhalations.

⊕ in mild cases of this disease. They
act by discharging bile from the
Stomach. The miasmata not only adhere
bile into the stomach, but they produce
such an action upon it, as to induce in it
the secretion of the black matter called B. Vomica.

convulsions. I have seen many inter-
mittent fevers ushered in by the latter symp-
toms. ... creating sickness & Vomiting.

+ They act on the stomach & bowels.

It is highly important to attend
to this, as it furnishes the indication for the use of
emetics; & ~~probably the medicinal~~

leaves in all bilious diseases miasmata.

This I ascribe to a peculiar dispo-

sition in the miasmata to act upon

that viscus, so as to increase the secretion

& excretion, of bile & perhaps to vitiate

the quality of the bile. These facts

disposed to combine this opinion from

having ^{add weight to} fully adopted the old & exploded

doctrine of ~~bilious~~ specificities.

- li. The miasmata produce in the

stomach & bowels sickness - Vomiting

✓ Cattle, hogs & sheep that feed on low grounds
in the fall, have often large inflamed & ulcerated livers.
✓ Some times the bile is ~~often~~ mixed w:

the blood in these fevers, and produces a
dusky yellow tincture on the skin. An
epidemic of this kind is described by
Dr Haller in his Pathology. I ~~saw~~ ^{saw} it

in the American Army in the
Autumn of 1786. It is totally dif-
ferent from the yellow fever of the
West Indies. It is called febris biliosa-jcteroides

by Savage. ^{same} which produce bil. fevers

* Does the ~~miasmata~~ ^{same} act on
the bowels so as to produce ^{the} Dysentery?

- This is a knotty question. I am disposed

^{answer} ~~believe~~ ^{that} they do, and the two diseases are

produced by the greater or less disposition of
the system to one or other of those ^{cases} diseases,

or by the combination of the miasmata
with more or less cold, or moisture.

~~Dysenteria, from the liver pain - and
inflamed - The bile is often so ^{vitiates} ~~vicious~~
in its ~~quality~~ ^{qualities} as to excoriate the fauces
& rectum in escaping upwards or
downwards - and ~~this~~ after it is dis-
charged to occasion syncope by its highly
offensive smell. V. 90 to 2nd p 86 ①~~

~~are said to
they act on the blood in some instances,
so as to dispose it to a septic tendency. For~~

~~Dyscrasia
Lupa the disposition of the blood ^{it} appears
in these fevers ^{appears to} may be the effect of the
violent ~~diminished~~ action of the arteries on it
rending & tearing it to pieces. - This expⁿ
~~of whose deficiency of action the~~
of the cause of dissolved blood, you will find in
Denham. The action of miasmata is rendered
more certain by their ^{being} combined with
cold or moisture. Hence they affect the
system most certainly in the morning~~

Exhalations of the
from the same mill pond a Dysentery
will be produced on the inhabitants
of the summit, and a bilious or enter-
ic fever on the inhabitants of
the declivity of the same hill. On the
summit of the hill, the exhalations
are combined with more cold, and
moisture than below it. Mr Bruce tells
us that he often saw the Dysentery and
bilious fever alternate with each other
at Annapolis. Dr Sydenham ~~seems to~~
adopt the idea of it being produced by ^{the} ~~one~~
same kind of virus ^{hence}. He calls it the
Dysentery "febris Enterica". Dr Chebbon
& Dr Clark of the same opinion.
not only the Dysentery, but the ^{bilious} ~~enteric~~
fever depends upon the same ~~source~~ ^{cause}

~~In the morning - In midday they are elevated high in the air & at midnight they are precipitated to the ground. I shall hereafter mention several~~
~~go to p. 88 & 89.~~

circumstances which influence the action of ~~animal~~ miasmata on the system.

In the mean while, I proposed to speak

of another combination with Air as

called 2^d ~~Human~~ ^{Animal} miasmata, or mias-

-mata from living bodies, or idiomiasmatic

However mortifying it may be to hu-

man pride, we are forced to admit

that our bodies engender the seeds of

pestiferousness. — The morbid matter ^{ch} w:

produces these diseases is derived from

the following ~~various~~ causes.

1 The want of Cleanliness. This ^{accor-} ~~accor-~~

ding to Mr Howard is a fruitful source

of febrile diseases. ~~Unsanitary~~ ^{cases} ~~Unsanitary~~

are tho't to engender the seeds of these

transmuted under different circum-
stances of weather or constitution.

^{The soil gives out on some times the}
[All the fevers produced by putrid
Symptoms of Dysentery.]

Vegetable exhalation are at more
or less contagious. — This is evident

from the Anethories of both the kinds,

Dr Cleghorn — Dr Clarke — Dr Rodgers —

Dr Zimmerman — Riverius &c

in short from all the writers on

Epidemics, & I have ever met with

it. Innumerable proofs of it have

occurred in our country, & many

others your own observation, nor ^{will} ~~was~~

^{repel the} ~~the~~ ^{which prove} ~~truth~~ facts ever called in ques-

tion as by Gady, but by the College of

Philada^a the Professor of the ~~theory~~ ^{Practice}

of Physic in the University of Penn^a.

who tho' he ^{asserted &} ~~has~~ taught it, and I am

satisfied does not believe himself. X

fevers more than Cotton or woollen,
 Attho' the latter are supposed to retain
 it longer. The fevers of the campaign
 1786 were ascribed in part to the
 use of the rifle shirt which was uni-
 -versally worn by the Southern troops
 during the late War. —

2 Confinement in a Crowd. The plague
 in Egypt has been ascribed to the inhabi-
 -tants of the shores of the Nile crowding
 together during the overflowing of that
 river. Jails - hospitals - and even
 Schools often become the sources of
^{fevers from} ~~this disease~~ the confinement and
 concentration of ~~persons~~ the discharges
 from the pores of the human body.
 & The discharges from the body are more

X How long the miasmata may lie in the body before it produces a fever is unknown. many facts prove it to be for 20 & even 30 days. But some facts ^{it is said, make it} much longer. D^r Jackson says 6 months. ~~but it is said, make it~~ New comers seldom take the fever on our neck till the 2nd year ^{after they arrive.} The ~~Dr~~ ^{Dr} McRae of Congress informed me [March 7. 1799] that the troops who returned from Canada last war never had Remittents till the 2nd fall after y^r return. no other persons had that disease, and no one soldier escaped it] = The sporadic cases of yellow fever which occur in the winter & spring months, ^{are said} ~~are~~ to be derived from miasmata still floating in the system. ~~reference to p. 89.~~ ~~after the first~~

I have given of the sources of marsh, or putrid
 miasmata, and of their effects upon the human
~~mind~~, body, you will be surprised to hear
 that the existence of these miasmata has been
 called in question - may more, that Exp^t made
 with the Indianer ~~fact~~ ^{both} ~~and~~ in America and
 America prove that they have no existence at all,
 and that the atmosphere supposed to contain them,
 is two degrees purer than the air of adjoining, and
 healthy mountains. To these exp^t I shall only reply
 that the same mode of reasoning would prove the
 non existence of those matters ~~in~~ in the air which
 produce the small pox, measles, & an hundred odors
^{or} float in the atmosphere, none of which I believe
 ever discover themselves by means of any of the
 chemical test that ever has been invented. As well might
 we might we deny the existence of spirit, because it
 cannot be made obvious to our senses as the exis-
 tence of miasmata, ^{because they are not to be discovered by the Indianer.}
 The ~~last~~ West Indies, and the
 Game Guards of the United States ~~are~~ have furnished
 within the last ¹² years many - many thousand
 proofs of their existence. To deny them is to renounce ^{our} reason
 all observation, & even the evidence of our senses. go to p 89. ©

